

## SINGLE HEAD LASER HIGH THROUGHPUT LASER SHOCK PEENING

## ABSTRACT

5 A laser unit in a laser shock peening apparatus  
for generating a primary laser beam along a primary  
beam path includes a pulsed free running oscillator  
with only a single lasing rod. An electro-optic  
switch external to the free running laser oscillator  
is operably disposed along the primary beam path to  
10 block the initial slow rise time of the primary laser  
beam from the free running oscillator and reject  
energy away from the primary beam path. At least one  
optical transmission circuit is used to form at one  
stationary laser beam from the primary laser beam and  
15 direct the stationary laser beam towards at least one  
laser shock peening target area. A delay generator  
controllably connected to the electro-optic switch is  
used to reject energy away from the primary beam path  
along a dump path to a dump and sharpen pulses of the  
primary laser beam.